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EXAMINER

MOWLA, GOLAM

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/769,791	Applicant(s) TANAKA, MASAO	
	Examiner GOLAM MOWLA	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/30/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/18/2008 has been entered.

Response to Amendment

2. Applicant's amendment of 06/18/2008 does not place the Application in condition for allowance.
3. Claims 1 and 3-17 are pending. Applicant has amended claims 1 and 13, cancelled claim 2.

Status of the Rejections

4. Due to Applicant's amendment of claims 1 and 13, all rejections from the office Action mailed on 03/19/2008 are withdrawn. New ground(s) of rejection under 35 U.S.C. 102/103 is/are necessitated by the amendments.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-6, 9, 11, and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagai et al. (JP 2001-193245, as cited in IDS; refer to online machine translation).

With respect to claim 1, Nagai discloses an attaching structural unit used for installing a quadrangular solar battery module (see [0006-0007, 0009], [0018-0034]; see also fig. 1) into a slanted roof (roof comprising roof member 100; see fig. 1, 8 and 12), the attaching structural unit comprising:

- a module frame (the frame comprising PV cell1; see fig. 1; [0009, 0018-0019]) attached to the solar-battery module (photovoltaic cell 1; fig. 1 and 8);
- the module frame comprising a pair of first (eaves side transverse-frame member 3; fig. 1; [0018], [0021]) and second (ridge side transverse-frame member 2; fig. 1; [0018], [0019-0020]) elongated frame elements opposed to each other (see fig. 1) and a pair of third (left-hand side longitudinal frame member; fig. 1; [0024]) and fourth (right-hand side longitudinal frame member; fig. 1; 0025]) elongated frame elements opposed to each other (see fig. 1), wherein:

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- each of the third (6) and fourth (7) frame elements respectively includes a water-leakage preventive edges (waterproof packing 10; see fig. 10) protruding outward and extending longitudinally from each of the frame elements (see fig. 10);
- the first frame element (3) is a front-side frame element placed in the direction of an eaves side of the roof (roof comprising roof member 100) (see fig. 1; [0018], [0021]);
- the second frame element (2) is a rear-side frame element placed in the direction of a ridge side of the roof (roof comprising roof member 100) (see fig. 1 and 8; [0018], [0019-0020]);
- the third frame element (6) is a left-side frame element placed in the direction of a left side with respect to the slope of the roof (roof comprising member 100) (see fig. 1, 8 and 12);
- a fourth frame element (7) is a right-side frame element placed in the direction of a right side with respect to the slope of the roof (100) (see fig. 1, 8 and 12);
- the third (6) and fourth (7) frame elements each extend along the left and right sides of the frame substantially from the first frame member (3) to the second frame member (2) (see fig. 1 and 8; [0024-0025]),
- in the state that the module frame is attached the solar-battery module to form a module unit (module unit comprising photovoltaic cell 1 as shown in fig. 1) and a plurality of the module units are placed on the roof (100)

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adjacent to one another (see fig. 8 which shows plurality of module units each comprising PV cell 1 are placed adjacent to each other);

- the rear-side frame element (2) in one module unit (module frame comprising PV cell 1 as shown in fig. 1) is placed under the front-side frame element (3) of another module unit (another unit of frame element comprising a different PV unit 1 as shown in fig. 8) adjacent to said one module unit in an overlapped manner (as shown in fig. 8, there are multiple module unit each comprising PV cell 1, each of these module unit comprises a module frame as shown in fig. 1, and are placed in overlapped manner as shown in fig. 8),
- the water-leakage preventive edge (waterproof packing 10; see fig. 10) in the left-side frame element (6) in one module unit (solar-battery module frame comprising PV cell 1 as shown in fig. 1) is under or on the water-leakage preventive edge (waterproof packing 10; see fig. 10) in the right-side frame element (7) of another module unit (another unit of module frame comprising a different PV unit 1 as shown in fig. 8) adjacent to said one module unit in an overlapped manner (see fig. 8), and
- the water-leakage preventive edge (waterproof packing 10; see fig. 10) in the right-side frame element (7) in one module unit (solar-battery module frame comprising PV cell 1 as shown in fig. 1) is on or under the water-leakage preventive edge (waterproof packing 10; see fig. 10) in the left-side frame element (6) of another module unit (another unit of frame

element comprising a different PV unit 1 as shown in fig. 8) adjacent to said one module unit in an overlapped manner (see fig. 8).

With respect to claim 3, Nagai further discloses that the front-side frame element (3) has a front hook (L-shaped connecting tool 5 comprising connection flat part 51 and connection standing board part 52; see fig. 5, 8 and 9) on its lower surface (surface containing flat part 32; see fig. 8 and 9), and the rear-side frame element (2) has a rear hook (flat part 24 having connecting part 25; see fig. 2) on its upper surface (surface containing flat part 21; fig. 2) which can be engaged with the front hook (5) in another module unit (see fig. 8) (see also [0018-0034]).

With respect to claim 4, Nagai further discloses that the attaching structural unit of claim 3 further comprising:

- a securing member (fastener 4; see fig. 4, 8, 9 and 11) for securing the module frame onto a beam (stationary plate part 41; see fig. 8, 9 and 11) on the roof (roof comprising roof member 100) is further provided and the rear-side frame (2) is further provided with a protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) that protrudes forward on its lower surface (surface containing flat part 22) (see fig. 2, 8, 9 and 11),
- the securing member (fastener 4) being provided with a plurality of securing metal tools (fixed nail 8e; see fig. 11), a front securing tool (attachment part 33 comprising within flat part 31 and 32; fig. 3, 8, 9 and 11) that can be engaged (through screw breakthrough 38 as shown in fig. 3 and screw hole 53 as shown in fig. 5) with the front hook (connecting

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tool 5 containing 51 and 52) in the front-side frame element (3), and a rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2, 8, 9, and 11) that can be engaged with the protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) in the rear-side frame element (2),

- the front securing tool (attachment part 33 comprising within flat part 31 and 32) being provided with hole sections (screw hole 37 and screw breakthrough 38; fig. 1) through which the securing metal tools (fixed screw 8d; fig. 1) are inserted, so that the front securing tool (attachment part 33 comprising within flat part 31 and 32) is secured to the beam (stationary plate part 41; see fig. 8, 9 and 11) of the roof through the roof-forming member (100), and
- the rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2) being provided with hole sections (screw hole 28; see fig. 1 and 2) through which the securing metal tools (fixed screw 8c; see fig. 1) are inserted, and being placed on the beam (stationary plate part 41; see fig. 8, 9 and 11) in an engaged state with the protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) of the rear-side frame element (2).

With respect to claim 5, Nagai further discloses that the first frame element (3), second frame element (2), third frame element (6) and fourth frame element (7) are divided respectively (see fig. 1 which shows 2, 3, 6, and 7 are divided separately), and are connected and assembled with small screws (fixed screw 8a-8d) (see fig. 1 which shows 2, 3, 6, and 7 are connected by screws 8a-8d).

With respect to claim 6, Nagai further discloses that the front hook (L-shaped connecting tool 5 comprising connection flat part 51 and connection standing board part 52; see fig. 5, 8 and 9) is detachably attached to the front-side frame element (3) from its front side by using small screws (its evident from the fig. 3, 5, and 8, 9, and 11 that screw breakthrough 38 and screw hole 53 are connected using screw 8d as shown in fig. 1).

With respect to claim 9, Nagai further discloses that the rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2) is formed to have a length shorter than the rear-side frame element (2) (see fig. 2).

With respect to claim 11, Nagai discloses a module unit, comprising a quadrangular solar-battery module (photovoltaic cell 1; fig. 1) and a module frame (solar battery module frame comprising photovoltaic cell as shown in fig. 1) in the attaching structural unit of claim 1, to be attached to the solar-battery module (1).

With respect to claim 13, Nagai discloses a solar-battery structural unit (see [0018-0019]), comprising:

- a quadrangular solar-battery module (PV cell 1; see fig. 1);
- a module frame (solar battery frame; see fig. 1; [0019]) to be attached to the solar-battery module (1) to form a module unit (the frame comprising PV cell 1; see fig. 1; [0009, 0018-0019]); and
- a securing member (fastener 4; see fig. 4, 8, 9 and 11) used for securing the module unit on a beam (stationary plate part 41; see fig. 8, 9 and 11) on a roof (roof member 100; fig. 8),

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- wherein the module frame (solar battery frame; see [0019]) comprises:
 - a front-side elongated frame element (3) to be placed in the direction of an eaves of a slanted roof (roof comprising roof member 100; see fig. 8);
 - a rear-side elongated frame element (2) to be placed in the direction of a ridge of the roof (roof comprising roof member 100; see fig. 8);
 - a left-side elongated frame element (6) to be placed in the direction of a left side with respect to the slope of the roof which has a water-leakage preventive edge (waterproof packing 10) protruding outward and extending longitudinally from the frame element (6); and
 - a right-side elongated frame element (7) to be placed in the direction of a right side with respect to the slope of the roof which has a water-leakage preventive edge (10) protruding outward and extending longitudinally from the frame element (7),
 - the left-side frame elongated frame element (6) and the right-side elongated frame element (7) each extend along the left and right sides of the frame (solar battery frame; see fig. 1; [0019]) substantially from the front-side elongated frame member (3) to the rear-side elongated frame member (2),

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- wherein the front-side frame element (3) is provided with a front hook (L-shaped connecting tool 5 comprising connection flat part 51 and connection standing board part 52; see fig. 5, 8 and 9) on its lower surface (surface containing flat part 32; see fig. 8 and 9), and
- wherein the rear-side frame element (2) is provided with a rear hook (flat part 24 having connecting part 25; see fig. 2) placed on its upper surface (surface containing flat part 21; fig. 2) and located on the front hook (5) of the front-side element (3) of another module frame (see fig. 8) engaged therewith in the front-to-rear direction (see fig. 8), and a protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) protruding forward on the lower surface (surface containing flat part 22) (see fig. 2, 8, 9 and 11),
- wherein the left-side frame element (6) and right-side frame element (7) are respectively provided with a water-leakage preventive edge (10) protruding outward and extending longitudinally from frame element (6 and 7), and
- wherein the securing member (fastener 4) including includes a plurality of securing metal tools (fixed screw 8a-8d, and fixed nail 8e; see fig. 11), a front securing tool (attachment part 33 comprising within flat part 31 and 32; fig. 3, 8, 9 and 11) for engaging (through screw breakthrough 38 as shown in fig. 3 and screw hole 53 as shown in fig. 5) with the front hook (connecting

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tool 5 containing 51 and 52) of the module frame in the front-to-rear direction (see fig. 8), and a rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2, 8, 9, and 11) for engaging with the protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) of the module frame in the front-to-rear direction (see fig. 8 and 9 and 11), and

- wherein the front securing tool (attachment part 33 comprising within flat part 31 and 32) includes hole sections (screw hole 37 and screw breakthrough 38; fig. 1) through which the securing metal tools (fixed screw 8d; fig. 1) are inserted, so that the front securing tool (attachment part 33 comprising within flat part 31 and 32) is secured to the beam (stationary plate part 41; see fig. 8, 9 and 11) of the roof through the roof-forming member (100), and
- wherein the rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2) comprises hole sections (screw hole 28; see fig. 1 and 2) through which the securing metal tools (fixed screw 8c; see fig. 1) are inserted which is placed on the beam (stationary plate part 41; see fig. 8, 9 and 11) in an engaged state with the protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) of the rear-side frame element (2), and
- wherein in the state that the module frame is attached the solar-battery module to form a module unit (module unit comprising

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photovoltaic cell 1 as shown in fig. 1) and a plurality the module units are placed on a roof (roof comprising roof member 100; see fig. 8, 9 and 11) adjacent to one another (see fig. 8);

- wherein the rear-side frame element (2) in one module unit (module frame comprising PV cell 1 as shown in fig. 1; see also fig. 8) is placed under the front-side frame element (3) of another module unit (another unit of frame element comprising a different PV unit 1 as shown in fig. 8) adjacent to said one module unit in an overlapped manner (as shown in fig. 8, there are multiple module unit each comprising PV cell 1, each of these module unit comprises a module frame as shown in fig. 1, and are placed in overlapped manner as shown in fig. 8),
- wherein the water-leakage preventive edge in the left-side frame element in one module unit is under or on the water-leakage preventive edge in the right-side frame element of another module unit or a right-side end in the roof-forming member in an overlapped manner, and
- wherein the water-leakage preventive edge (waterproof packing 10; see fig. 10) in the right-side frame element (7) in one module unit is on or under the water-leakage preventive edge (10) in the left-side frame element (6) of another module unit (another unit of module

frame comprising a different PV unit 1 as shown in fig. 8) in an overlapped manner (see fig. 8).

With respect to claim 14, Nagai discloses an attaching method for the solar-battery structural unit of claim 13, comprising the steps of:

- securing the front securing tool (attachment part 33 comprising within flat part 31 and 32; fig. 3, 8, 9 and 11) to the beam (stationary plate part 41; see fig. 8, 9 and 11) of the roof (roof comprising roof member 100; see fig. 8) from above the roof-forming member (100) with the securing metal tools (fixed screw 8d; fig. 1);
- engaging the rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2) with the protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) of the rear-side frame element (2) (see also fig 1 for the engagement),
- engaging the front hook (L-shaped connecting tool 5 comprising connection flat part 51 and connection standing board part 52; see fig. 5, 8 and 9) of the front-side frame element (3) with the front securing tool (attachment part 33 comprising within flat part 31 and 32; fig. 3, 8, 9 and 11) (see also fig. 1 for the engagement), and
- placing the rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2) on the beam (stationary plate part 41; see fig. 8, 9 and 11) of the roof (roof comprising roof member 100; see fig. 8), and securing thereon with the securing metal tools (fixed screw 8c; fig. 1).

With respect to claim 15, Nagai further discloses that the attaching method of claim 14, wherein, in case where the module units are placed on a roof (roof comprising roof member 100; see fig. 8, 9 and 11) with a plurality of rows (3 rows as shown in fig. 8) in the front-to-rear direction (see fig. 8),

the protruding hook (engagement part 26; see fig. 2, 8, 9 and 11) of the rear-side frame element (2) in the module unit to be located in the direction of the ridge of the roof (see fig. 1 and 8 which shows that 2 is located in the direction of the ridge of the roof) is engaged with the rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2), the front hook (L-shaped connecting tool 5 comprising connection flat part 51 and connection standing board part 52; see fig. 5, 8 and 9) of the front-side frame element (3) in the same module unit is also engaged with the rear hook of the rear-side frame element (2) in a module unit to be adjacent to the above module unit (see fig. 8), and the above rear securing tool (attachment part 23 within flat part 21 and 22; fig. 2) is placed on the beam (stationary plate part 41; see fig. 8, 9 and 11) of the roof (roof comprising roof member 100; see fig. 8) and secured with the securing metal tools (fixed screw 8c; fig. 1).

With respect to claim 16, Nagai discloses a removing method for a module unit attached on a roof by using the attaching method of claim 15 which comprises the steps of:

- removing the front hook (removing connecting tool 5, [0034]) of the front-side frame element (3) in a module unit to be exchanged (see [0034-0035]),

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- pushing the module unit up toward so that at least the protruding hook (26) of the rear-side frame element (2) is separated from the rear securing tool (see [0034-0035]), and
- raising the front end of a module unit adjacent to the above module unit (“...the separated eaves side transverse-frame member (3) is raised up the whole solar cell tile...”, [0034]), thereby detaching the module unit to be exchanged from the roof.

With respect to claim 17, Nagai further discloses that the removing method of claim 16 in which the front hook (connecting tool 5) is detachably attached (using screw as shown in fig. 1) to the front-side frame element (2) (see fig. 8 and 9), and a module unit to be newly used is beforehand detached on its front hook (connecting tool 5), which is followed by inserting the new module unit into the position of removed module unit, engaging the protruding hook of the new module unit on the rear securing tool, re-attaching the front hook which is beforehand detached to the new module unit, and engaging the front hook with the front securing tool or the rear hook of the adjacent module unit (see [0034-0035]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai as applied to claim 1 above, and further in view of Kinoshita et al. (US PG PUB 2002/0053360, as cited in previous office action).

Applicant is directed above for complete discussion of an attaching structural unit as discussed above for claim 1. Nagai is silent as to whether the module frame is further provided with a decorative cover that is detachably attached to the front- side frame element (3).

Kinoshita et al. discloses a solar cell module for the roof (paragraph 5) and further discloses wherein the module frame/edges of the solar cell installed in such a manner are provided with a decorative cover for preventing infiltration of rainwater and for improving the external appearance (paragraph 5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a decorative cover as taught by Kinoshita et al. to the photovoltaic structural unit of Ishikawa et al. in order to prevent infiltration of rainwater and for improving external appearance.

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10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai as applied to claim 1 above, and further in view of Ishikawa et al. (US 5524401, as cited in previous office action).

Applicant is directed above for complete discussion of an attaching structural unit as discussed above for claim 1. Nagai is silent as to whether the module frame is further provided with a reinforcing member which is placed on the back face of the solar-battery module so as to connect the first frame element (3) and the second frame element (2).

Ishikawa discloses an attaching structural unit (col. 1, lines 6-9) for installing solar battery module (col. 2, lines 26-30), wherein the module frame is further provided with a reinforcing member (support member 6b as shown in Figure 2) which is placed on the back face of the solar-battery module so as to connect the first frame element and the second frame element (col. 2; lines: 34-39 & col. 3; lines: 20-26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the reinforcing member of Ishikawa in the attaching structural unit of Nagai, because such use of reinforcing member is conventional in the art to connect the first frame element and the second frame element as shown by Ishikawa.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai as applied to claim 1 above, and further in view of Kondo et al. (US 6300555).

Applicant is directed above for complete discussion of an attaching structural unit as discussed above for claim 1. Nagai further shows a gap between the module frame and the solar-battery module (see fig. 1), but silent as to whether the module frame is further provided with a foamed resin member that is incorporated in the gap between the module frame and the solar-battery module.

Kondo discloses a solar cell module (see title and abstract; see also 1; col. 5, lines 1-20) the module frame (aluminum frame 21; fig. 1) encapsulates the solar cell (1; fig. 1) and foamed resin (spacer 31 as shown in fig. 1 which is made of foamed resin; see col. 4, lines 25-29) is disposed in the gap between the module frame (21) and the solar cell (1). Kondo utilizes a foamed resin to provide heat insulation to the solar cell module (see col. 5, lines 1-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the foamed resin of Kondo in the gap of Nagai in between the module frame and the solar-battery module of Nagai to provide heat insulation to the solar battery module as taught by Kondo.

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai as applied to claim 1 above, and further in view of Mizukami et al. (US 6242685, as cited in previous office action).

Applicant is directed above for complete discussion of an attaching structural unit as discussed above for claim 1. Nagai is silent as to whether the module unit of claim

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11, which is provided with a back film with metal foil bonded to the rear surface of the solar-battery module.

Mizukami et al. discloses photovoltaic modules (11) on a roof (Figure 5A) and further discloses a back steel or aluminum plate (13) as shown in Figure 3 (col. 3; lines: 17-23) serving as the anode of the photovoltaic module (11) (col. 3; lines: 24-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the metal foil/stainless steel plate of Mizukami in the module unit of Nagai in order to have the aluminum plate serve as the anode of the photovoltaic module.

Response to Arguments

13. Applicant's arguments with respect to claims 1 and 3-17 have been considered but are moot in view of the new ground(s) of rejection.

Due to Applicant's amendment to claims 1 and 13, a new ground(s) of rejections is made in view of Nagai, Kinoshita, Ishikawa, Kondo and Mizukami.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 1, 3-6, 8-11, 13, 14 and 15

Applicant argues that "in Applicant's module frame, the first frame element (front-side frame element) and the second frame element (rear-side frame element) are opposed to each other, and the third frame element (left-side frame element) and the forth frame element (right-side frame element) are opposed to each other. The fact that the left-side frame element (e.g., third frame element) and the right-side frame element

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(e.g., fourth frame element) extend from the front-side frame element to the rear-side frame element is now explicitly required by both independent claims 1 and 13.

Moreover, both independent claims 1 and 13 continue to require that the water-leakage preventive edge protruding outwardly (e.g., laterally) and extend angled downward (e.g., longitudinally) from the ridge to the eaves of the roof. None the three applied references appear to have water-leakage preventive edges on right and left sides of the frame” (see Remarks, pages 9-10).

The argument is moot in view of new ground(s) of rejection as required by Applicant’s amendment of claims 9 and 13 (see rejection(s) of claims under 35 U.S.C. 102 and/or 103).

Correspondence/Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GOLAM MOWLA whose telephone number is (571) 270-5268. The examiner can normally be reached on M-F, 0900-1700 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, ALEXA NECKEL can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/G. M./

Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1752